

## SEQUENCE LISTING

<110> Epidauros Biotechnologie AG

<120> Polymorphisms in the human CYP3A4 and CYP3A7 genes and their use in diagnostic and therapeutic applications

<130> D 2145 PCT

<140> US 10/070,587

<141> 2002-03-08

<150> EP 99 11 8120.7

<151> 1999-09-10

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<170> PatentIn Ver. 2.1

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 <223> Description of Artificial Sequence: Synthetic Sequence  
  
 <400> 115  
 acctcgtgcc a 11  
  
 <210> 116  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic Sequence  
  
 <400> 116  
 ggcaccgtaa g 11  
  
 <210> 117  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence



<220>  
 <223> Description of Artificial Sequence: Synthetic Sequence  
  
 <400> 117  
 cttacggtgc c 11  
  
 <210> 118  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic Sequence  
  
 <400> 118  
 ggcactgtaa g 11  
  
 <210> 119  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic Sequence  
  
 <400> 119  
 cttacagtgc c 11  
  
 <210> 120  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic Sequence  
  
 <400> 120  
 acttctgctt t 11  
  
 <210> 121  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic Sequence  
  
 <400> 121  
 aaagcagaag t 11  
  
 <210> 122  
 <211> 11  
 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Sequence

<400> 122

acttcggctt t

11

<210> 123

<211> 11

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Sequence

<400> 123

aaagccgaag t

11

<210> 124

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Sequence

<400> 124

tactggacag agc

13

<210> 125

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Sequence

<400> 125

gctctgtcca gta

13

<210> 126

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Sequence

<400> 126

tactggagag agc

13

<210> 127

<211> 13

<212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic Sequence

<400> 127  
 gctctctcca gta 13

<210> 128  
 <211> 249  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <223>

<220>  
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 <222> (116)..(168)  
 <223>

<220>  
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 <222> (169)..(249)  
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<220>  
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 <222> (116)..(166)  
 <223>

<400> 128  
 cctctaactg ccagcaagtc tgatttcatt ggcttcgact gttttcatcc caattagagg 60  
 cagggttaag tacattaataa ataataatca aatattatct tgtttctcct cccag grc 118  
 Xaa  
 1  
 ttt tgt atg ttt gac atg gaa tgt cat aaa aag tat gga aaa gtg tgg 166  
 Phe Cys Met Phe Asp Met Glu Cys His Lys Lys Tyr Gly Lys Val Trp  
 5 10 15  
 gggtgagtat tctggaaact tccattggat agacttggtt ctatgatgag tttacccac 226  
 tgcacagagg acagtctcag ccc 249

<210> 129  
 <211> 17  
 <212> PRT  
 <213> Homo sapiens

<220>

<221> MISC\_FEATURE

<222> (1)..(1)

<223> Xaa is Gly or Asp

<400> 129

Xaa	Phe	Cys	Met	Phe	Asp	Met	Glu	Cys	His	Lys	Lys	Tyr	Gly	Lys	Val
1				5					10					15	

Trp

<210> 130

<211> 293

<212> DNA

<213> Homo sapiens

<220>

<221> intron

<222> (1)..(77)

<223>

<220>

<221> exon

<222> (78)..(177)

<223>

<220>

<221> intron

<222> (178)..(293)

<223>

<220>

<221> CDS

<222> (79)..(177)

<223>

<400> 130

agtctggcctt cctggggttg gctccagctg tagaataagg ctgttgatgt ttaatcaact 60

ctgtttttttt	cacacagc	ttt	tat	gat	ggg	caa	cag	cct	gtg	ctg	gct	atc	111
		Phe	Tyr	Asp	Gly	Gln	Gln	Pro	Val	Leu	Ala	Ile	
		1				5					10		

aca	gat	cct	gac	atg	atc	aaa	aca	gtg	cta	gtg	aaa	gaa	tgt	tat	tct	159
Thr	Asp	Pro	Asp	Met	Ile	Lys	Thr	Val	Leu	Val	Lys	Glu	Cys	Tyr	Ser	
		15				20					25					

gtc	ttc	aca	aac	cgg	agg	gtaagcattc	atgtgttgaa	attaaaatac	207
Val	Phe	Thr	Asn	Arg	Arg				
		30							

tgattgatta aatttatatt ttgaaattct tatatatattca tagacagttg cctaaaaaat 267

gtccaggaag gttccacgtc cacttc 293

<210> 131

<211> 33  
 <212> PRT  
 <213> Homo sapiens

<400> 131  
 Phe Tyr Asp Gly Gln Gln Pro Val Leu Ala Ile Thr Asp Pro Asp Met  
   1                  5                  10                  15  
 Ile Lys Thr Val Leu Val Lys Glu Cys Tyr Ser Val Phe Thr Asn Arg  
           20                  25                  30

Arg

<210> 132  
 <211> 236  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> intron  
 <222> (1)..(61)  
 <223>

<220>  
 <221> exon  
 <222> (62)..(175)  
 <223>

<220>  
 <221> intron  
 <222> (176)..(236)  
 <223>

<220>  
 <221> CDS  
 <222> (62)..(175)  
 <223>

<400> 132  
 ctacaaccat ggagacctcc acaactgatg taggacaaaa tgtttctgct ttgaactcta 60  
 g cct ttt ggt cca gtg gga ttt atg aaa agt gcc atc tct ata gct gag 109  
   Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu  
     1                  5                  10                  15  
 gat gaa gaa tgg aag aga tta cga tca ttg ctg tct cca acc ttc acc 157  
 Asp Glu Glu Trp Lys Arg Leu Arg Ser Leu Leu Ser Pro Thr Phe Thr  
           20                  25                  30  
 agt gga aaa ctc aag gag gtatgaaaat aacatgagtt ttaataagaa 205  
 Ser Gly Lys Leu Lys Glu  
           35  
 acttaaagaa tgaatctggt ggggacaggt a 236

<210> 133  
 <211> 38  
 <212> PRT  
 <213> Homo sapiens

<400> 133  
 Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu  
           1                  5                  10                  15  
 Asp Glu Glu Trp Lys Arg Leu Arg Ser Leu Leu Ser Pro Thr Phe Thr  
                   20                  25                  30  
 Ser Gly Lys Leu Lys Glu  
                   35

<210> 134  
 <211> 393  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> intron  
 <222> (1)..(98)  
 <223>

<220>  
 <221> exon  
 <222> (99)..(247)  
 <223>

<220>  
 <221> intron  
 <222> (248)..(393)  
 <223>

<220>  
 <221> CDS  
 <222> (100)..(246)  
 <223>

<400> 134  
 gtctgtcttg actggacatg tggctttcct gatgcacgca tagaggaagg atggtaaaaa 60  
 ggtgctgatt ttaattttcc acatctttct ccactcagc gtc ttt ggg gcc tac 114  
   Val Phe Gly Ala Tyr  
   1                  5  
 agc atg gat gtg atc act agc aca tca ttt gga gtg aac atc gac tct 162  
 Ser Met Asp Val Ile Thr Ser Thr Ser Phe Gly Val Asn Ile Asp Ser  
                   10                  15                  20  
 ctc aac aat cca caa gac ccc ttt gtg gaa aac acc aag aag ctt tta 210  
 Leu Asn Asn Pro Gln Asp Pro Phe Val Glu Asn Thr Lys Lys Leu Leu  
                   25                  30                  35  
 aga ttt gat ttt ttg gat cca ttc ttt ctc tca ata agtatgtgga 256  
 Arg Phe Asp Phe Leu Asp Pro Phe Phe Leu Ser Ile

40

45

ctactatttc cttttattta tcttkctctc ttaaaaataa ctgctttatt gagatataaa 316

tcaccatgta attcatccac ttaaaatata cagttcagtg atttgtagta catttgaaga 376

tatgtgtgac catcatc 393

<210> 135

<211> 49

<212> PRT

<213> Homo sapiens

<400> 135

Val Phe Gly Ala Tyr Ser Met Asp Val Ile Thr Ser Thr Ser Phe Gly  
1 5 10 15

Val Asn Ile Asp Ser Leu Asn Asn Pro Gln Asp Pro Phe Val Glu Asn  
20 25 30

Thr Lys Lys Leu Leu Arg Phe Asp Phe Leu Asp Pro Phe Phe Leu Ser  
35 40 45

Ile

<210> 136

<211> 240

<212> DNA

<213> Homo sapiens

<220>

<221> intron

<222> (1)..(82)

<223>

<220>

<221> exon

<222> (83)..(149)

<223>

<220>

<221> intron

<222> (150)..(240)

<223>

<220>

<221> CDS

<222> (83)..(148)

<223>

<400> 136

ggagatcaag gaccacgctt gtgatttact tctgacttca ggagccactt tctgtcagtg 60

aaatttctct ttttgcttct ag cac cga gtg gat ttc ctt cag ctg atg att 112  
His Arg Val Asp Phe Leu Gln Leu Met Ile

1 5 10  
gac tct cag aat tca aaa gaa act gag tcc cac aaa ggtaaccaga 158  
Asp Ser Gln Asn Ser Lys Glu Thr Glu Ser His Lys  
15 20

gtgtttctga gggctacttg tggggcactc agaggggaagg ccttggtctg aaaatgtgca 218  
ggaagtattc caggatgatg ag 240

<210> 137  
<211> 22  
<212> PRT  
<213> Homo sapiens

<400> 137  
His Arg Val Asp Phe Leu Gln Leu Met Ile Asp Ser Gln Asn Ser Lys  
1 5 10 15  
Glu Thr Glu Ser His Lys  
20

<210> 138  
<211> 399  
<212> DNA  
<213> Homo sapiens

<220>  
<221> intron  
<222> (1)..(111)  
<223>

<220>  
<221> exon  
<222> (112)..(338)  
<223>

<220>  
<221> intron  
<222> (339)..(399)  
<223>

<220>  
<221> CDS  
<222> (112)..(336)  
<223>

<400> 138  
ccagtatgag ttgttctctg gaacttctaa cagttcaaca gtactacatg gactgagtta 60  
aaagttaatt caaaaatctc aatttatcca aatctgtttc tttcttttca g gca cca 117  
Ala Pro  
1

ccc acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg 165  
Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val



	5	10	15	
aat gaa acg ctc aga tta ttc cca att gct atg aga ctt gag agg gtc				213
Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu Arg Val				
	20	25	30	
tgc aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg tgg				261
Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Trp				
	35	40	45	50
gtg gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg				309
Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp				
	55	60	65	
asa gag cct gag aag ttc ctc cct gaa aggtaggagg cccctgggaa				356
Xaa Glu Pro Glu Lys Phe Leu Pro Glu				
	70	75		
gggagccctc cctgaaccag cctggttcaa gcatattctg cct				399

&lt;210&gt; 139

&lt;211&gt; 75

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

&lt;222&gt; (67)..(67)

&lt;223&gt; Xaa is Thr or Arg

&lt;400&gt; 139

Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met			
1	5	10	15

Val Val Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu			
20	25	30	

Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys			
35	40	45	

Gly Trp Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys			
50	55	60	

Tyr Trp Xaa Glu Pro Glu Lys Phe Leu Pro Glu		
65	70	75

&lt;210&gt; 140

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic Sequence

<400> 140  
 ccagtatgag ttgttctctg g 21

<210> 141  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic Sequence

<400> 141  
 aggcagaata tgcttgaacc aggc 24

<210> 142  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic Sequence

<400> 142  
 gaagtggacg tggaaccttc ctggac 26

<210> 143  
 <211> 304  
 <212> DNA  
 <213> Homo sapiens

<400> 143  
 agtctggcct cctgggttgg gctccagctg tagaataagg ctgttgatgt ttaatcaact 60  
 ctgttttttt cacacagctt ttatgatggc caacagcctg tgctggctat cacagatcct 120  
 gacatgatca aaacagtgc agtgaaagaa tggtattctg tcttcacaaa ccggagggtg 180  
 agcattcatg tggtgaaatt aaaatactga ttgattaaat ttatattttg aaattcttat 240  
 atattcatag acagttgcct aaaaaatgtc caggaagggt ccacgtccac ttcattcctgt 300  
 cccc 304

<210> 144  
 <211> 236  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (62)..(175)

<220>  
 <221> intron  
 <222> (1)..(61)

<220>  
 <221> intron  
 <222> (176)..(236)

<220>  
 <221> exon  
 <222> (62)..(175)

<400> 144  
 ctacaaccat ggagacctcc acaactgatg taggacaaaa tgtttctgct ttgaactcta 60  
 g cct ttt ggt cca gtg gga ttt atg aaa agt gcc atc tct ata gct gag 109  
 Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu  
 1 5 10 15  
 gat gaa gaa tgg aag aga tta caa tca ttg ctg tct cca acc ttc acc 157  
 Asp Glu Glu Trp Lys Arg Leu Gln Ser Leu Leu Ser Pro Thr Phe Thr  
 20 25 30  
 agt gga aaa ctc aag gag gtatgaaaat aacatgagtt ttaataagaa 205  
 Ser Gly Lys Leu Lys Glu  
 35  
 acttaaagaa tgaatctggt ggggacaggt a 236

<210> 145  
 <211> 38  
 <212> PRT  
 <213> Homo sapiens

<400> 145  
 Pro Phe Gly Pro Val Gly Phe Met Lys Ser Ala Ile Ser Ile Ala Glu  
 1 5 10 15  
 Asp Glu Glu Trp Lys Arg Leu Gln Ser Leu Leu Ser Pro Thr Phe Thr  
 20 25 30  
 Ser Gly Lys Leu Lys Glu  
 35

<210> 146  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (188)..(274)

<400> 146  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatggctctt ttatctttat 60

gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
tgcttag atg gtc cct atc att gcc cag tat gga gat gtg ttg gtg aga 229  
Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg  
1 5 10  
aat ctg agg cgg gaa gca gag aca ggc aag cct atc acc ttg aaa 274  
Asn Leu Arg Arg Glu Ala Glu Thr Gly Lys Pro Ile Thr Leu Lys  
15 20 25  
gagtaagtag aagcgcagcc atggggttct gagctgtcat gaaccctcc agctgcctgc 334  
catggagctg atattcctgc tgttgggtta ttccagtgc cagac 379

<210> 147  
<211> 29  
<212> PRT  
<213> Homo sapiens

<400> 147  
Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg Asn Leu  
1 5 10 15  
Arg Arg Glu Ala Glu Thr Gly Lys Pro Ile Thr Leu Lys  
20 25

<210> 148  
<211> 379  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (188)..(274)

<400> 148  
ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatggctctt ttatctttat 60  
gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
tgcttag atg gtc cct atc att gcc cag tat gga gat gtg ttg gtg aga 229  
Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg  
1 5 10  
aat ctg agg cgg gaa gca gag aca ggc aag cct gtc acc ttg aaa 274  
Asn Leu Arg Arg Glu Ala Glu Thr Gly Lys Pro Val Thr Leu Lys  
15 20 25  
cagtaagtag aagcgcagcc atggggttct gagctgtcat gaaccctcc agctgcctgc 334  
catggagctg atattcctgc tgttgggtta ttccagtgc cagac 379

<210> 149  
 <211> 29  
 <212> PRT  
 <213> Homo sapiens

<400> 149  
 Met Val Pro Ile Ile Ala Gln Tyr Gly Asp Val Leu Val Arg Asn Leu  
           1                  5                  10                  15  
 Arg Arg Glu Ala Glu Thr Gly Lys Pro Val Thr Leu Lys  
                   20                  25

<210> 150  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<400> 150  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatgggtcctt ttatcttttat 60  
 gtacagaaaa cacatcacaa aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
 aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
 tgcttagatg gtccctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240  
 ggaagcagag acaggcaagc ctgtcacctt gaaagagtaa gtagaagcgc agctatgggg 300  
 ttctgagctg tcatgaaccc ctccagctgc ctgccatgga gctgatattc ctgctgttgg 360  
 gttattccag tgaccagac 379

<210> 151  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<400> 151  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatgggtcctt ttatcttttat 60  
 gtacagaaaa cacatcacaa aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
 aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
 tgcttagatg gtccctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240  
 ggaagcagag acaggcaagc ctgtcacctt gaaagagtaa gtagaagcgc agccatgggt 300  
 ttctgagctg tcatgaaccc ctccagctgc ctgccatgga gctgatattc ctgctgttgg 360  
 gttattccag tgaccagac 379

<210> 152  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<400> 152  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatgggtcctt ttatcttttat 60  
 gtacagaaaa cacatcacaa aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
 aagccatgtc cttctgggac tagagtctgc acatttaact atgggtggtg ttgtgttttg 180  
 tgcttagatg gtccctatca ttgccagta tggagatgtg ttggtgagaa atctgaggcg 240  
 ggaagcagag acaggcaagc ctgtcacctt gaaagagtaa gtagaagcgc agccatgggg 300  
 ttctgagctg tcatgaaccc ctccagcggc ctgccatgga gctgatattc ctgctgttgg 360  
 gttattccag tgaccagac 379

<210> 153  
 <211> 431  
 <212> DNA  
 <213> Homo sapiens

<400> 153  
 cccagtgtac ctctgaattg cttttctatt cttttccctt agggatttga gggcttccact 60  
 tagattttctc ttcattctaaa ctgtgatgcc ctacattgat ctgattttacc taaaatgtct 120  
 ttctctctcct ttcagctctg tccgatctgg agctcgtggc ccaatcaatt atctttatctt 180  
 ttgctggcta tgaaaccacg agcagtgttc tctccttcat tatgtatgaa ctggccactc 240  
 accctgatgt ccagcagaaa ctgcaggagg aaattgatgc agttttaccc aataagggtga 300  
 gtggatgata catggagaag gagggaggag gtgaaacctt agcaaaaatg cctcctcacc 360  
 acttcccagg agaattttta taaaaagcat aatcactgat tctttcactg actctatgta 420  
 ggaaggctct g 431

<210> 154  
 <211> 574  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (110)..(334)

<400> 154  
 cagtatgagt tagtctctgg agctcctaact acttcattag tactgcatgg actgagttaa 60  
 aagttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccag gca cca ccc 118  
 Ala Pro Pro  
 1  
 acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg aat 166  
 Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val Asn  
 5 10 15  
 gaa atg ctc aga tta ttc cca att gct atg aga ctt gag agg gtc tgc 214  
 Glu Met Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu Arg Val Cys  
 20 25 30 35  
 aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg gtg gtg 262  
 Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Val Val  
 40 45 50  
 gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg aca 310  
 Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp Thr  
 55 60 65  
 gag cct gag aag ttc ctc cct gaa aggtacaagg cccctgggaa gggagccctc 364  
 Glu Pro Glu Lys Phe Leu Pro Glu  
 70 75  
 cctgaaccag cctggttcaa gcatattctg cctctcttaa tctacaggac agtcatgtgg 424  
 ttgtataatt atttgcttgt atttttatat ttagagattt ttttaatcat caaattgatt 484  
 attgtcacac tttacaaacc atagactaga aaaaagaaaa ctacagtcac ccacaattcc 544

aacaacttac gatgaaggtc atcagttatg

574

<210> 155

<211> 75

<212> PRT

<213> Homo sapiens

<400> 155

Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met  
1 5 10 15

Val Val Asn Glu Met Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu  
20 25 30

Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys  
35 40 45

Gly Val Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys  
50 55 60

Tyr Trp Thr Glu Pro Glu Lys Phe Leu Pro Glu  
65 70 75

<210> 156

<211> 574

<212> DNA

<213> Homo sapiens

<400> 156

cagtatgagt tagtctctgg agctcctaact acttcattag tactgcatgg actgagttaa 60  
aagttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccagg caccaccac 120  
ctatgatact gtgctacaga tggagtatct tgacatgggt gtgaatgaaa cactcagatt 180  
attcccaatt gctatgagac ttgagaggggt ctgcaaaaaa gatgttgaga tcaatgggat 240  
gttcattccc aaaggggtgg tggatgatgat tccaagctat gctcttcacc gtgacccaaa 300  
gtactggaca gagcctgaga agttcctccc tgaaaggtac aaggcccctg ggaaggagc 360  
cctccctgaa ccagcctgggt tcaagcatat tctgcctctc ttaatctaca ggacagtc 420  
gtggttgat aattatttgc ttgtattttt atatttagag atttttttaa tcatcaaatt 480  
gattattgtc acactttaca aaccatagac tagaaaaaag aaaactacag tcatccaaa 540  
ttccaacaac ttacgatgaa ggtcatcagt tatg 574

<210> 157

<211> 574

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (110) .. (334)

<400> 157

cagtatgagt tagtctctgg agctcctaact acttcattag tactgcatgg actgagttaa 60

aagttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccag gca cca ccc 118  
Ala Pro Pro

acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg aat 166  
 Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val Asn  
           5                          10                          15

gaa acg ctc aga tta ttc cca att gct atg aga ttt gag agg gtc tgc 214  
 Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Phe Glu Arg Val Cys  
           20                          25                          30                          35

aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg gtg gtg 262  
 Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Val Val  
                           40                          45                          50

gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg aca 310  
 Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp Thr  
                           55                          60                          65

gag cct gag aag ttc ctc cct gaa aggtacaagg cccctgggaa gggagccctc 364  
 Glu Pro Glu Lys Phe Leu Pro Glu  
                           70                          75

cctgaaccag cctgggttcaa gcatattctg cctctcttaa tctacaggac agtcatgtgg 424

ttgtataatt atttgcttgt atttttatat ttagagattt ttttaatcat caaattgatt 484

attgtcacac tttaaaacc atagactaga aaaaagaaaa ctacagtcac ccacaattcc 544

aacaacttac gatgaaggtc atcagttatg 574

<210> 158

<211> 75

<212> PRT

<213> Homo sapiens

<400> 158

Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met  
           1                          5                          10                          15

Val Val Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Phe Glu  
                           20                          25                          30

Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys  
                           35                          40                          45

Gly Val Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys  
           50                          55                          60

Tyr Trp Thr Glu Pro Glu Lys Phe Leu Pro Glu  
           65                          70                          75

<210> 159

<211> 574

<212> DNA

<213> Homo sapiens

<220>



&lt;221&gt; CDS

&lt;222&gt; (110)..(334)

&lt;400&gt; 159

cagtatgagt tagtctctgg agctcctaact atttcattag tactgcatgg actgaggttaa 60

aagttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccag gca cca ccc 118  
 Ala Pro Pro  
 1

acc tat gat act gtg cta cag atg gag tat ctt gac atg gtg gtg aat 166  
 Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met Val Val Asn  
 5 10 15

gaa acg ctc aga tta ttc cca att gct atg aga ctt gag agg gtc tgc 214  
 Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu Arg Val Cys  
 20 25 30 35

aaa aaa gat gtt gag atc aat ggg atg ttc att ccc aaa ggg gtg gtg 262  
 Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys Gly Val Val  
 40 45 50

gtg atg att cca agc tat gct ctt cac cgt gac cca aag tac tgg aca 310  
 Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys Tyr Trp Thr  
 55 60 65

gag cct gag aag ttc ctc ctt gaa aggtacaagg cccctgggaa gggagccctc 364  
 Glu Pro Glu Lys Phe Leu Leu Glu  
 70 75

cctgaaccag cctgggttcaa gcatattctg cctctcttaa tctacaggac agtcatgtgg 424

ttgtataatt atttgcttgt atttttatat ttagagattt ttttaatcat caaattgatt 484

attgtcacac tttacaaacc atagactaga aaaaagaaaa ctacagtcac ccacaattcc 544

aacaacttac gatgaaggtc atcagttatg 574

&lt;210&gt; 160

&lt;211&gt; 75

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 160

Ala Pro Pro Thr Tyr Asp Thr Val Leu Gln Met Glu Tyr Leu Asp Met  
 1 5 10 15

Val Val Asn Glu Thr Leu Arg Leu Phe Pro Ile Ala Met Arg Leu Glu  
 20 25 30

Arg Val Cys Lys Lys Asp Val Glu Ile Asn Gly Met Phe Ile Pro Lys  
 35 40 45

Gly Val Val Val Met Ile Pro Ser Tyr Ala Leu His Arg Asp Pro Lys  
 50 55 60

Tyr Trp Thr Glu Pro Glu Lys Phe Leu Leu Glu  
 65 70 75

<210> 161  
 <211> 574  
 <212> DNA  
 <213> Homo sapiens

<400> 161  
 cagtatgagt tagtctctgg agctcctaata acttcattag tactgcatgg actgagttaa 60  
 aagttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccagg caccacccac 120  
 ctatgatact gtgctacaga tggagtatct tgacatgggt gtgaatgaaa cgctcagatt 180  
 attcccaatt gctatgagac ttgagagggt ctgcaaaaaa gatgttgaga tcaatgggat 240  
 gttcattccc aaaggggtgg tggatgatgat tccaagctat gctcttcacc gtgacccaaa 300  
 gtactggaca gagcctgaga agttcctccc tgaaagggtac aaggctccctg ggaagggagc 360  
 cctccctgaa ccagcctggg tcaagcatat tctgcctctc ttaatctaca ggacagtcac 420  
 gtggttgat aattatttgc ttgtattttt atatttagag atttttttta tcatcaaatt 480  
 gattattgtc acactttaca aaccatagac tagaaaaaag aaaactacag tcatccacaa 540  
 ttccaacaac ttacgatgaa ggtcatcagt tatg 574

<210> 162  
 <211> 411  
 <212> DNA  
 <213> Homo sapiens

<400> 162  
 cctgtgtact actagttgag ggggtggcccc taagtaagaa accctaacat gtaactctta 60  
 ggggtattat gtcattaact ttttaaaaaa ctaccaatgt ggaaccagat tcagcaagaa 120  
 gaacaaggac aacatagatc cttacatata cacacccttt ggaagtggac ccagaaaactg 180  
 cattggcatg aggtttgctc tcatgaacat gaaacttgct ctaatcagag tccttcagaa 240  
 cttctccttc aaaccttgta aagaaacaca ggtagtcaa ttttctataa aaataatgtt 300  
 gtattaataa ttcttttaac tgagtggctc gtatttttta aaaagaatat gcttgtttaa 360  
 tcttttacta atttgttctc tgggccaaag aatcaattag gcccatctgt g 411

<210> 163  
 <211> 288  
 <212> DNA  
 <213> Homo sapiens

<400> 163  
 ggagtgtctc actcactttg atgctatact ttctactttt gtttatttaa tgcttctcaa 60  
 tatgcttggt taactgttgc agatccccct gaaattaagc ttaggaggac ttcttcaacc 120  
 agaaaaaccc gttgttctaa aggttgagtc aagggatggc actgtaagtg gagcctgaat 180  
 tttcctaagg acttctgctt tgctcttcaa gaaatctgtg cctgagaaca ccagagacct 240  
 caaattactt tgtgaataga actctgaaat gaagatgggc ttcatcca 288

<210> 164  
 <211> 288  
 <212> DNA  
 <213> Homo sapiens

<400> 164  
 ggagtgtctc actcactttg atgctatact ttctactttt gtttatttaa tgcttctcaa 60  
 tatgcttggt taactgttgc agatccccct gaaattaagc ttaggaggac ttcttcaacc 120  
 agaaaaaccc gttgttctaa aggttgagtc aagggatggc accgtaagtg gagcctgaat 180  
 tttcctaagg acttcggctt tgctcttcaa gaaatctgtg cctgagaaca ccagagacct 240

caaattacttt tgtgaataga actctgaaat gaagatgggc ttcattcca 288

<210> 165  
 <211> 236  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> r=g or a

<400> 165  
 ctacaacccat ggagacctcc acaactgatg taggacaaaa tgtttctgct ttgaactcta 60  
 gccttttgggt ccagtgggat ttatgaaaag tgccatctct atagctgagg atgaagaatg 120  
 gaagagatta cratcattgc tgtctccaac cttcaccagt ggaaaactca aggaggatg 180  
 aaaataacat gagttttaat aagaaactta aagaatgaat ctggtgggga caggta 236

<210> 166  
 <211> 379  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> r=g or a, y=t or c, s=g or c, k=g or t

<400> 166  
 ccctttccaa ggggtagtcc actgaatttg agctgcctaa aaatgggtctt ttatctttat 60  
 gtacagaaaa cacatcacia aattcattat aaaatgtcac ttactgctcc atgctgggga 120  
 aagccatgtc cttctgggac tagagtctgc acatttaact atgggtgggtg ttgtgttttg 180  
 tgcttagatg gtccctatca ttgcccagta tggagatgtg ttggtgagaa atctgaggcg 240  
 ggaagcagag acaggcaagc ctrtcacett gaaasagtaa gtagaagcgc agcyatgggk 300  
 ttctgagctg tcatgaaccc ctccagckgc ctgccatgga gctgatattc ctgctgttgg 360  
 gttattccag tgaccagac 379

<210> 167  
 <211> 431  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <223> r=g or a

<400> 167  
 ccagtgtagc ctctgaattg cttttctatt cttttccctt agggatttga gggcttcact 60  
 tagatttctc ttcattctaaa ctgtgatgcc ctacattgat ctgatttacc taaaatgtct 120  
 ttctctctct ttcagctctg tccgatctgg agctcgtggc ccaatcaatt atctttattt 180  
 ttgctgggcta tgaaaccacg agcagtggtc tctccttcac tatgtatgaa ctggccactc 240  
 accctgatgt ccagcagaaa ctgcaggagg aaattgatgc agttttacc aataaggtga 300  
 gtggatgrta catggagaag gagggaggag gtgaaacctt agcaaaaatg cctcctcacc 360  
 acttcccagg agaattttta taaaaagcat aatcactgat tctttcactg actctatgta 420  
 ggaaggctct g 431

<210> 168  
 <211> 574  
 <212> DNA  
 <213> Homo sapiens

<220>

<223> y=t or c, r=g or a

<400> 168

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cagtatgagt tagtctctgg agctcctaact acttcattag tactgcatgg actgagttaa 60
aagtttaattc aaaatctcaa tttatccaaa tctgtttcgt tctttccagg caccacccac 120
ctatgatact gtgctacaga tggagtatct tgacatgggtg gtgaatgaaa yrctcagatt 180
attcccaatt gctatgagay ttgagagggt ctgcaaaaaa gatgttgaga tcaatgggat 240
gttcattccc aaaggggtgg tggatgatgat tccaagctat gctcttcacc gtgacccaaa 300
gtactggaca gagcctgaga agttcctccy tgaaaggtac aaggyccctg ggaagggagc 360
cctccctgaa ccagcctggg tcaagcatat tctgcctctc ttaatctaca ggacagtcac 420
gtggttgtat aattatttgc ttgtattttt atatttagag atttttttta tcatcaaatt 480
gattattgtc acactttaca aaccatagac tagaaaaaag aaaactacag tcatccacaa 540
ttccaacaac ttacgatgaa ggtcatcagt tatg 574
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<210> 169

<211> 411

<212> DNA

<213> Homo sapiens

<220>

<223> y=t or c

<400> 169

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cctgtgtact actagttgag ggggtggcccc taagtaagaa accctaacat gtaactctta 60
gggggtattat gtcattaact ttttaaaaat ctaccaaygt ggaaccagat tcagcaagaa 120
gaacaaggac aacatagatc cttacatata cacacccttt ggaagtggac ccagaaactg 180
cattggcatg aggtttgtct tcatgaacat gaaacttgct ctaatcagag tccttcagaa 240
cttctccttc aaaccttgta aagaaacaca ggtagtcaa ttttctataa aaataatgtt 300
gtattaataa ttcttttaac tgagtgggtc gtatttttta aaaagaatat gcttgtttta 360
tcttttacta atttgttctc tgggcccagg aatcaattag gcccatctgt g 411
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<210> 170

<211> 288

<212> DNA

<213> Homo sapiens

<220>

<223> y=t or c, k=g or t

<400> 170

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ggagtgtctc actcactttg atgctatact ttctactttt gtttatttaa tgcttctcaa 60
tatgcttggt taactgttgc agatccccct gaaattaagc ttaggaggac ttcttcaacc 120
agaaaaaccc gttgttctaa aggttgagtc aagggatggc acygtaatg gagcctgaat 180
tttctaagc acttckgctt tgctcttcaa gaaatctgtg cctgagaaca ccagagacct 240
caaattactt tgtgaataga actctgaaat gaagatgggc ttcacca 288
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<210> 171

<211> 30

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(30)

<400> 171

cct gtc acc ttg aaa cac gtc ttt ggg gcc  
Pro Val Thr Leu Lys His Val Phe Gly Ala  
1 5 10

30

<210> 172

<211> 10

<212> PRT

<213> Homo sapiens

<400> 172

Pro Val Thr Leu Lys His Val Phe Gly Ala  
1 5 10